

USSN: 09/879,257

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Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

52. (currently amended) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-303~~40~~, between amino acid residues 305-306, between amino acid residues 306-307, between amino acid residues 308-309, between amino acid residues 309-310 between amino acid residues 362-363, the N-terminal (before amino acid residue 1) and the C-terminal (after amino acid residue 486); and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 1, and further wherein said modified amino acid sequences with SEQ ID NO: 6 continues to have glucose-6-phosphate dehydrogenase activity.

53. (currently amended) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-303~~40~~, between amino acid residues 305-306, between amino acid residues 306-307, between amino acid residues 308-309, between amino acid residues 309-310 between amino acid residues 362-363, the N-terminal (before amino acid residue 1) and the C-terminal (after amino acid residue 486); and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 2, and further wherein said modified amino acid sequences with SEQ ID NO: 6 continues to have glucose-6-phosphate dehydrogenase activity.

USSN: 09/879,257
Yamamoto, S.

54. (currently amended) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-30310, between amino acid residues 305-306, between amino acid residues 306-307, between amino acid residues 308-309, between amino acid residues 309-310 between amino acid residues 362-363, the N-terminal (before amino acid residue 1) and the C-terminal (after amino acid residue 486); and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 3, and further wherein said modified amino acid sequences with SEQ ID NO: 6 continues to have glucose-6-phosphate dehydrogenase activity.

55. (currently amended) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-30310, between amino acid residues 305-306, between amino acid residues 306-307, between amino acid residues 308-309, between amino acid residues 309-310 between amino acid residues 362-363, the N-terminal (before amino acid residue 1) and the C-terminal (after amino acid residue 486); and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 4, and further wherein said modified amino acid sequences with SEQ ID NO: 6 continues to have glucoso-6-phosphate dehydrogenase activity.

56. (currently amended) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-30310, between amino acid residues 305-306, between amino acid residues 306-307, between amino acid residues 308-309, between amino acid residues 309-310 between amino acid residues 362-363, the N-terminal

USSN: 09/879,257

Yamamoto, S.

(before amino acid residuo 1) and the C-terminal (after amino acid residue 486); and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 5, and further wherein said modified amino acid sequences with SEQ ID NO: 6 continues to have glucose-6-phosphate dchydrogenase activity.

57. (currently amended) An isolated and genetically modified hybrid glucose-6-phosphate dchydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-303~~40~~, between amino acid residues 305-306, between amino acid residues 306-307, between amino acid residues 308-309, between amino acid residues 309-310 between amino acid residues 362-363, the N-terminal (before amino acid residue 1) and the C-terminal (after amino acid residuc 486); and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 46, and further wherein said modified amino acid sequences with SEQ ID NO: 6 continues to have glucose-6-phosphate dehydrogenase activity.

58. (currently amended) An isolated and genetically modified hybrid glucose-6-phosphate dehydrogenase (G6PDH) comprising the amino acid sequence of SEQ ID NO: 6 wherein the hybrid G6PDH is modified to have a peptide inserted into at least one specific position from the group consisting of the position between amino acid residues 294-295, between amino acid residues 302-303~~40~~, between amino acid residues 305-306, between amino acid residues 306-307, between amino acid residues 308-309, between amino acid residues 309-310 between amino acid residues 362-363, the N-terminal (before amino acid residue 1) and the C-terminal (after amino acid residue 486); and wherein said peptide consists of at least 6 amino acid residues of the amino acid sequence of SEQ ID NO: 50, and further wherein said modified amino acid sequences with SEQ ID NO: 6 continues to have glucose-6-phosphate dehydrogenase activity.